COMPUTER IN AN INPUT DEVICE

CROSS-REFERENCE TO RELATED APPLICATION(S)

[0001] This claims priority to U.S. Provisional Patent Application No. 63/067,783, filed 19 Aug. 2020, and entitled "Computer in an Input Device," the entire disclosure of which is hereby incorporated by reference.

FIELD

[0002] The described embodiments relate generally to computing devices. More particularly, the present embodiments relate to computing and input devices.

BACKGROUND

[0003] Large or bulky computing components have traditionally been needed within computing devices to achieve a desired level of performance, such as a desired amount of memory or a desired level of computing power. Housings for such computing devices were thus constrained to designs including relatively large or uninterrupted internal volumes. Other performance requirements for the computing devices also limited the housings to certain form factors.

[0004] A strong demand for portable computing devices which also deliver high performance has driven miniaturization and reduction in size of the once bulky computing components used to power and drive the devices. Components, such as processors, batteries, memory, integrated circuits, and the like are now being manufactured within smaller footprints to provide lightweight and thin portable computing devices. Consequently, further tailoring of housing designs, shapes, and configurations to provide additional or enhanced device functionality can therefore be desirable.

SUMMARY

[0005] One aspect of the present disclosure relates to a computing device having an enclosure that at least partially defines an internal volume and an external surface. The computing device includes an input component positioned at the external surface. A processing unit and a memory can be disposed within the internal volume. The processing unit and the memory can be communicatively coupled. The computing device includes a singular input/output port positioned at an orifice defined by the enclosure. The singular input/output port is communicatively coupled to the processing unit and the memory. The singular input/output port can be configured to receive both data and power. The singular input/output port can be configured to output data from the processing unit.

[0006] In some embodiments, the enclosure can include metal or composite material. The computing device can further include a track pad communicatively coupled to the enclosure. The input component can include a set of key mechanisms, each key mechanism of the set of key mechanisms can include a key cap, a support structure, and a biasing component. The input component can include a set of sensors, each sensor of the set of sensors can be configured to detect a capacitive touch or near touch at a surface layer of the input component. The computing device can include a power supply disposed within the internal volume. The singular input/output port can include a USB-C port, a Thunderbolt 3 port, or a Lightning port.

[0007] In some embodiments, the enclosure can define a vent to provide fluid communication between an ambient environment and the internal volume. The enclosure can include a first side wall, a second side wall, a rear-facing wall positioned between the first and second side wall, and a base. The computing device can be foldable about an axis, parallel to the rear-facing wall. The computing device can be foldable about an axis perpendicular to the rear-facing wall. The enclosure can define a majority volume and a minority volume, wherein the majority volume is positioned on a first side of a plane extending between the first and second side walls, and the minority volume is positioned on a second side of the plane. The plane can bisect the first and second side walls in half. A cross-sectional shape of the enclosure taken between the first and second side walls can be triangular.

[0008] Another aspect of the present disclosure relates to a computing device having an enclosure defining an internal volume, a first vent, a second vent, and an airflow pathway. The airflow pathway can extend from an ambient environment into the internal volume through the first vent, and from the internal volume into the ambient environment through the second vent. The enclosure can include a first side wall, a second side wall, a rear-facing wall, and a base. The rear-facing wall can be positioned between the first and second side walls. The computing device can include an input component positioned on the enclosure. The computing device can include a processing unit and a memory disposed within the internal volume. The processing unit and the memory can be communicatively coupled to one another. The computing device can include an air-moving apparatus disposed within the internal volume. The air-moving apparatus can move air along the airflow pathway.

[0009] In some embodiments, the enclosure can include a metal or composite material. The computing device can include a track pad coupled to the enclosure. The input component can include a set of key mechanisms, each key mechanism of the set of key mechanisms including a key cap, a support structure, and a biasing component. The input component can include a set of sensors, each sensor of the set of sensors can detect a capacitive touch or near touch at a surface layer of the input component. The computing component can also include a power supply disposed within the internal volume. The air-moving apparatus can be a bladed fan in some embodiments. The second vent can be defined in the rear-facing wall. The processing unit can be positioned in the airflow pathway.

[0010] In some embodiments, the computing device is foldable about an axis parallel to the rear-facing wall. Additionally or alternatively, the computing device can be foldable about an axis perpendicular to the rear-facing wall. The enclosure can define a majority volume and a minority volume. The majority volume can be positioned on a first side of a plane extending between the first and second side walls while the minority volume can be positioned on a second side of the plane. The plane can bisect the first and second side walls in half. A cross-sectional shape of the enclosure taken between the first and second side walls can be triangular.

[0011] According to another aspect of the present disclosure, a computing device can include an enclosure defining an internal volume and an external surface. The enclosure can include a first side wall, a second side wall, a rear-facing wall positioned between the first and second side walls, and